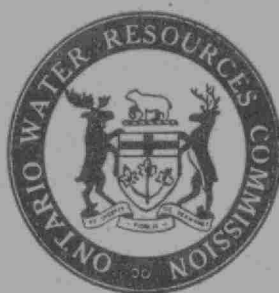


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THE
ONTARIO WATER RESOURCES
COMMISSION

WATER QUALITY SURVEY

OF THE

SOUTHERN PORTION OF THE WINNIPEG RIVER

DISTRICT OF KENORA

1964

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1964
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**TD
380
.W56
1964**

Report on a water quality
survey of the southern portion of
the Winnipeg River, district of
Kenora.

80754

R E P O R T

on

WATER QUALITY SURVEY

of the

SOUTHERN PORTION OF THE WINNIPEG RIVER

District of Kenora

September 12, 1964.

Division of Sanitary Engineering

REPORT

ONTARIO WATER RESOURCES COMMISSION

INTRODUCTION

A water quality survey was conducted on the southern portion of the Winnipeg River in the vicinity of the towns of Kenora and Keewatin on September 12, 1964. Surveys of this type are made routinely by the Ontario Water Resources Commission to obtain a general assessment of the sanitary quality of the waters of various lakes and rivers. Samples are collected at selected locations and submitted for bacteriological examination and sanitary chemical analysis.

GENERAL

The Winnipeg River originates at Lake of the Woods and flows northerly. The southern part has extensive residential and recreational developments on its shores. The two major communities, Kenora and Keewatin are not provided with municipal pollution abatement facilities. The discharge of untreated or partially treated domestic and industrial wastes can create a potential health hazard to persons using the Winnipeg River as a source of water, and for recreational purposes.

SAMPLING LOCATIONS

Samples were collected at various locations and submitted to the Ontario Water Resources Commission Laboratory for sanitary chemical analysis and to the Ontario Department of Health Regional Laboratory in Kenora for bacteriological examination. A map showing the sampling point locations and a copy of the analyses results are appended to this report. For comparison purposes, the results from the October 31, 1963 survey are also given.

INTERPRETATION AND SIGNIFICANCE OF LABORATORY ANALYSES

The analyses employed to assess the quality of water samples collected during the surveys were biochemical oxygen demand (BOD), suspended solids or turbidity and the total coliform determination.

The BOD is reported in parts per million (ppm) and is an indication of the amount of oxygen required for the stabilization (natural purification in a stream) of decomposable organic matter present in sewage, industrial wastes or polluted waters. The completion of the laboratory test requires five days under the controlled incubation temperature of 20° Centigrade (C). The Commission objective for stream water quality is an upper limit of 4 ppm.

The concentration of suspended solids expressed in parts per million (ppm) is generally the most significant of the solids

analyses in regard to stream water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habitat of fish.

Where suspended solids values approach 20 ppm or less, laboratory difficulties are experienced and the values of suspended matter are usually determined as turbidity.

The total coliform count is employed to obtain the Most Probable Number (MPN) of coliform organisms, and the number is reported per 100 cubic centimeters (c.c.) of the sample collected. The Multiple Tube Fermentation Procedure was used in the examination of these samples. The Commission objective for stream sanitation is a coliform density of not greater than 2,400 per 100.c.c.

WATER QUALITY

None of samples collected exceeded the Commission objective for water quality with respect to BOD and suspended solids or turbidity. However, two of the samples were at the objective and one exceeded the objective with respect to coliform content. The coliform contamination could be due to inadequately treated sanitary and industrial waste discharges from within the Town of Kenora. These are dealt with in a separate report on the town.

SUMMARY AND CONCLUSIONS

A water quality survey of the southern portion of the Winnipeg River revealed generally satisfactory conditions with respect

to the sanitary chemical quality of the water.

Bacteriological impairment probably resulted from the discharge of inadequately treated domestic and industrial wastes from the Town of Kenora.

RECOMMENDATION

Municipal and industrial pollution abatement programmes should be intensified in the Town of Kenora.

All of which is respectfully submitted,

District Engineer: C. E. McIntyre
C. E. McIntyre, P.Eng.

Approved by: K. H. Sharpe
K. H. Sharpe, Director.

T A B L E 1

SAMPLE RESULTS - WINNIPEG RIVER

<u>Sampling Point No.</u>	<u>Date</u>	<u>Location</u>	<u>5-Day BOD (ppm)</u>	<u>Total</u>	<u>SOLIDS Susp. (ppm)</u>	<u>Diss. (ppm)</u>	<u>Turbidity Units</u>	<u>M. P. N. Total Coliform Organisms per 100 c.c.</u>
WE 0.00	Oct.31/63 Sept.12/64	East Entrance at Railway Bridge opposite Kenora General Hospital	1.4 0.8	116 70	1	115	3.6	2400+ 2400
WW 0.00	Oct.31/63 Sept.12/64	West Entrance at Hwy.#17 Bridge joining Tunnel Island & Norman	1.3 0.9	128 62	1	127	2.8	15 23
WW 0.75	Oct.31/63 Sept.12/64	West Branch at Norman Dam	1.4 0.6	108 72	1	107	2.9	15 93
WE 0.88	Oct.31/63	East Branch at rapids downstream from Ontario- Minnesota Pulp & Paper Co.Ltd.plant	1.4	144	1	143		2400+
WE 1.50	Sept.12/64	East Branch at Dept.of Transport Dock	1.3	72			4.0	4300
WW 2.00	Oct.31/63 Sept.12/64	West Branch at Back Bridge (Hwy.#595) adjacent to Darlington Bay	1.5 1.2	112 82	1	111	4.0	93 240

T A B L E 1 (Cont'd)

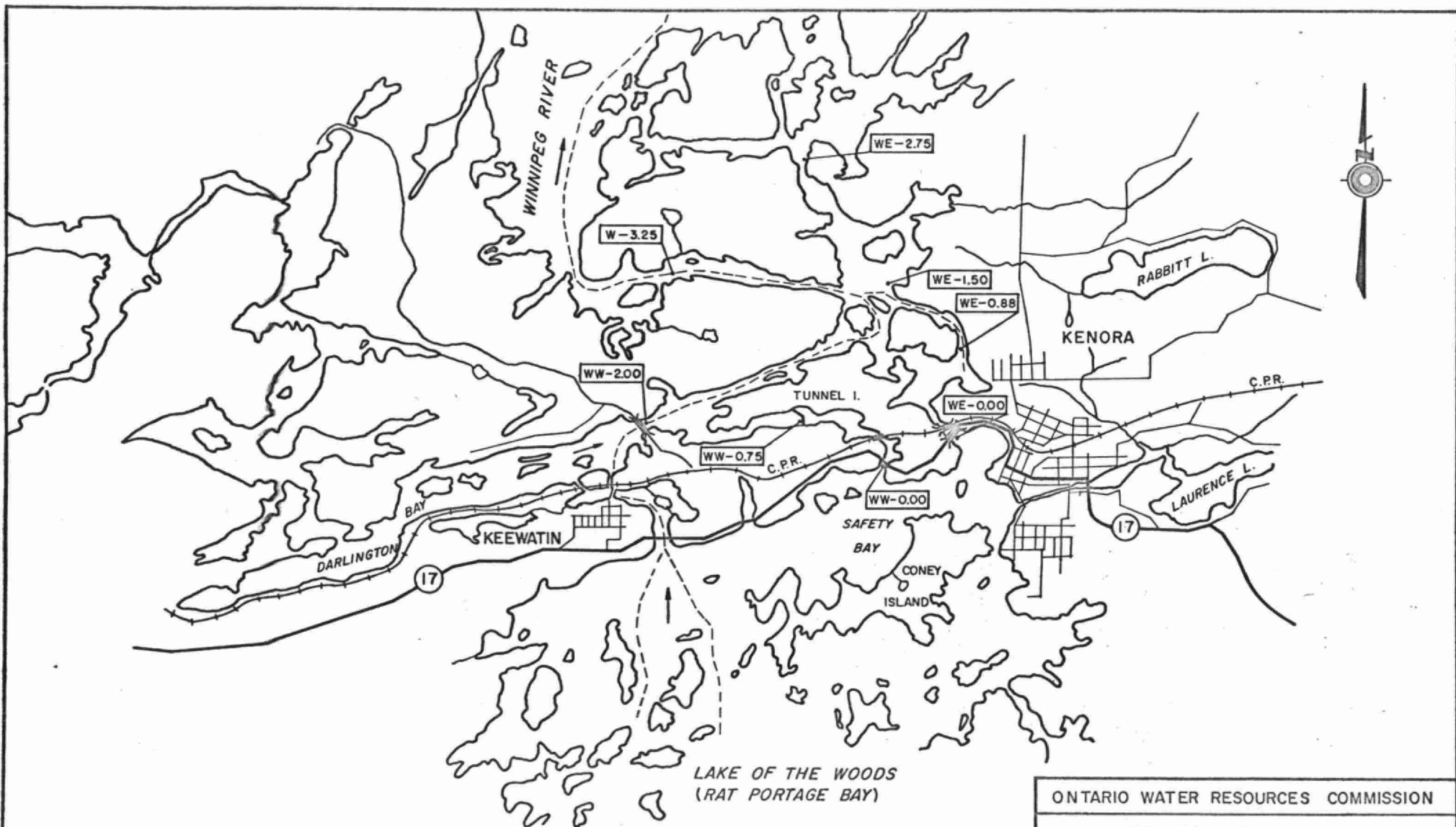
SAMPLE RESULTS - WINNIPEG RIVER

<u>Sampling Point No.</u>	<u>Date</u>	<u>Location</u>	<u>5-Day BOD (ppm)</u>	<u>SOLIDS Total (ppm)</u>	<u>Susp. Diss. (ppm) (ppm)</u>	<u>Turbidity Units</u>	<u>M. P. N. Total Coliform Organisms per 100 c.c.</u>
WE 2.75	Sept.12/64	East Branch at Dock at Andy's Camp	1.2	62		4.0	2400
W 3.25	Sept.12/64	At Sunnyside Cottages	1.0	72		3.6	93

NOTE:

October 31, 1963 - Samples collected by J. Thon and L. O. Hakenson

September 12, 1964 - Samples collected by C. E. McIntyre



LEGEND

WW-0.00 STREAM SAMPLING POINTS
 --- NAVIGATION ROUTES

ONTARIO WATER RESOURCES COMMISSION

WINNIPEG RIVER WATERSHED
 SHOWING SAMPLING POINTS
 AT THE TOWNS
 OF
 KENORA AND KEEWATIN

SCALE: 1" = 1 ML.

DRAWN BY: R.W.

DATE: DEC. 1963

CHECKED BY:

DRAWING No. 63-235

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